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(54) Title of Invention: Data Management Method Using External Memory Pack in Mobile  
Communication Terminal

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*Abstract*

The present application discloses a data management method using an external memory pack in a mobile communication terminal, by which a mobile communication terminal user can conveniently store and execute specific data and programs in the external memory pack with a command corresponding to an external storage function preset in the mobile communication terminal to be carried out via the external memory pack, after successful authentication for the external memory pack mounted to the mobile communication terminal via a connection unit.

The method includes mounting the external memory pack to the mobile communication terminal via a connection unit of the communication terminal, performing an authentication process for the external memory pack by a control unit of the mobile communication terminal in response to input of an authentication key from the external memory pack, and storing designated data and programs in the external memory pack according to control instructions from the control unit after successful authentication for the external memory pack. The method prevents problems in using various data and programs resulting from the limited capacity of the memory unit of the mobile communication terminal.

*Representative Drawings*

Fig. 2

## *Specification*

### *Brief Explanation of Drawings*

Fig. 1 is a block diagram of a system according to one embodiment of the present invention.

Fig. 2 is a flow chart of a data management process using an external memory pack in a mobile communication terminal according to one embodiment of the present invention.

#### *<Reference Numerals for Drawings>*

100: external memory pack	101: connection unit
102: microprocessor	103: memory unit
200: mobile communication terminal	201: control unit
202: radio frequency unit	203: keypad
204: liquid crystal display	205: memory unit
206: connection unit	
S1: mount external memory pack	
S2: receive authentication key from external memory pack	
S3: authentication completed?	
S4: store or load data and programs in external memory pack	
S5: display on liquid crystal display	

### *Detailed Description of the Invention*

#### *Objective of the Invention*

#### *Pertinent Art and Prior Art*

The present invention relates to a data management method using an external memory pack in a mobile communication terminal, and more particularly, to a data management method using an external memory pack in a mobile communication terminal, by which a mobile communication terminal user can conveniently store and execute data and programs in the external memory pack with a command corresponding to an external storage function preset in the mobile communication terminal to be carried out via the external memory pack, after successful authentication for the external memory pack mounted to the mobile communication terminal via a connection unit.

A conventional mobile communication terminal includes a memory unit for storing software algorithms for call services and add-on services, and data inputted by a terminal user.

In recent years, through various user functions of the mobile communication terminal, the mobile communication terminal user accesses the wireless Internet or computers through his or her terminal to download and store data such as moving pictures or application programs such as game programs in a flash memory, and to execute them in a virtual memory.

With an increase in use of the mobile communication terminal for data and application programs, the demand of mobile communication terminal users for utilizing various data and application programs on the mobile communication terminal has also increased.

However, since the conventional mobile communication terminal has a limited memory capacity, the terminal user experiences inconvenience due to restrictive use of data or application programs.

To solve such inconvenience, Korean Patent Application No. 10-1996-0066363, entitled "Multi-functional wireless terminal having an external memory detachably mounted thereon," discloses a technique which enables addition or deletion of data and programs through an external memory to be mounted to a mobile communication terminal. However, since the above invention does not include an authentication process with respect to the mounted external memory, anyone can easily use the data and programs stored in the external memory without the permission of the owner of the external memory.

#### *Technical Problems to be solved by the Invention*

To solve the problems of the prior art described above, the present invention provides a data management method using an external memory pack in a mobile communication terminal, by which, when the external memory pack is mounted to the mobile communication terminal via a connection unit, an authentication process for the external memory pack is executed in response to input of an authentication key from a microprocessor of the external memory pack, and data and programs can be downloaded and stored in the external memory pack with a command corresponding to an external storage function by a mobile communication terminal user or the stored data and programs can be loaded and executed on the mobile communication terminal through the user's selection if the authentication process is completed, so that the user can conveniently manage the data and programs with the external memory pack.

The above objective of the present invention can be achieved by a data management method using an external memory pack in a mobile communication terminal, including: mounting the external memory pack to the mobile communication terminal via a connection unit of the mobile communication terminal, performing an authentication process for the external memory pack by a control unit of the mobile communication terminal in response to input of an authentication key from the external memory pack, and storing designated data and programs in the external memory pack according to control instructions from the control unit after successful authentication with respect to the external memory pack.

#### *Constitution and Operation of the Invention*

Embodiments of the present invention will hereinafter be described in detail

with reference to the accompanying drawings.

Referring to Fig. 1, a system according to one embodiment of the present invention includes an external memory pack (100) and a mobile communication terminal (200). The external memory pack (100) is a sub-storage unit for data and application programs to perform data management according to control instructions. The mobile communication terminal (200) has a connection unit to mount the external memory pack (100) thereon, and performs data and program management using the mounted external memory pack according to control instructions for an external storage unit.

The external memory pack (100) according to the present invention includes a connection unit (101), a microprocessor (102) and a memory unit (103). The connection unit (101) is connected to or disconnected from a connection unit of the mobile communication terminal to receive or transmit data signals and control signals to the mobile communication terminal. The microprocessor (102) transmits the stored authentication key to the mobile communication terminal (200) when an authentication key request signal is received from the mobile communication terminal (200) through the connection unit (101), and controls operation of the external memory pack (100) according to control instructions. The memory unit (103) is controlled by the microprocessor (102) to store specific data and programs.

The mobile communication terminal (200) according to the present invention carries out general operation control to provide call services and add-on services according to terminal operation programs, and includes a control unit (201), a radio frequency unit (202), a keypad (203), a liquid crystal display (204), a memory unit (205) and a connection unit (206). The control unit (201) controls data and program management through the external memory pack (100). The radio frequency unit (202) performs signal processing tasks for wireless Internet service access or SMS data transmission under the operation control of the control unit (201). The keypad (203) consists of numeral keys and function keys to transmit key data corresponding to key pressed by user to the control unit (201). The liquid crystal display (204) displays information signals generated by the control unit (201) and the key data generated by the keypad (203). The memory unit (205) stores key data inputted by the keypad (203) and data received through the radio frequency unit (202) under the operation control of the control unit (201). The connection unit (206) is connected to or disconnected from the connection unit (101) of the external memory pack (100), generates a sensing signal when the external memory pack (100) is mounted to the mobile communication terminal (200) and transmits it to the control unit (201).

Upon detecting the sensing signal from the connection unit (206), the control unit (201) requests the mounted memory pack (100) to input an authentication key and performs a memory pack authentication process using the authentication key inputted. If the authentication of the memory pack (100) is completed, the control unit (201) stores data and programs in the memory pack (100), or reads and executes the data or programs stored therein according to control instructions for the memory pack (100).

which are selected by the user.

The invention method using the mobile communication terminal as described above, comprises: mounting the external memory pack (100) to the mobile communication terminal (200) via a connection unit (206), performing an authentication process for the external memory pack (100) by a control unit (201) of the mobile communication terminal in response to input of an authentication key from the external memory pack (100), and storing designated data and programs in the external memory pack (100) according to control instructions from the control unit (201) after successful authentication with respect to the external memory pack (100).

One embodiment of the invention will be described in detail with reference to Fig. 2.

For example, when a mobile communication terminal user wishes to download and store an application program such as a game program from a wireless Internet server via wireless Internet service access, the terminal user connects an external memory pack (100) to the connection unit (206) of a mobile communication terminal (200) to store a large application program (S1).

When the external memory pack (100) is mounted to a connection unit (206) of the mobile communication terminal (200), the connection unit (206) transmits to a control unit (201) a sensing signal indicating that the external memory pack (100) has been mounted to the mobile communication terminal (200), and the control unit (201) transmits an authentication key request signal to the external memory pack (100).

When the stored authentication key from a microprocessor (102) of the external memory pack (100) is received in response to the authentication key request signal, the control unit (201) performs an authentication process for the mounted memory pack (100) by determining whether or not the received authentication key coincides with an authentication key of the memory pack (100) preset in the terminal (S2).

Then, it is determined whether or not the authentication for the mounted memory pack (100) has been completed (S3). If the authentication key of the mounted memory pack (100) coincides with the authentication key stored in the mobile communication terminal, the mobile communication terminal user is allowed to store data and programs in the memory pack (100) or to load the data and programs stored therein (S4). If the authentication key of the mounted memory pack (100) does not coincide with the authentication key stored in the mobile communication terminal, the failure of authentication for the memory pack (100) is displayed on the liquid crystal display (204) of the terminal (200) (S5).

If the authentication for the mounted external memory pack (100) has been completed, the terminal user can select game programs which he wishes to download, designate the mounted external memory pack (100) as a storage path of the selected game programs and download the game programs via wireless Internet.

The game program downloaded from the wireless Internet server is transmitted to the external memory pack (100) mounted to the mobile communication terminal (200) and stored in the memory unit (103) of the external memory pack (100).

When the game program selected by the user is stored in the mounted external memory pack (100) in the manner described above, the terminal user can mount the external memory pack (100) having the game program stored therein to the mobile communication terminal, and then select and execute the game program stored therein, thus conveniently playing the game program.

#### *Effects of the Invention*

According to the present invention, an authentication process for an external memory pack mounted to a mobile communication terminal is performed, followed by storing data and programs in the external memory pack or by selecting and executing the data and programs stored in the memory pack, thereby preventing problems in using various data and programs resulting from the limited capacity of the memory unit of the mobile communication terminal.

**WHAT IS CLAIMED IS:**

1. A data management method using an external memory pack in a mobile communication terminal, comprising:  
mounting the external memory pack in the mobile communication terminal via a connection unit of the mobile communication terminal;  
transmitting from a control unit of the mobile communication terminal to the mounted external memory pack a user authentication key inputted to the mobile communication terminal by a mobile communication terminal user; and  
managing data and programs using a memory unit of the external memory pack if a user authentication is successfully completed by the user authentication key transmitted.
2. The data management method according to claim 1, wherein the authentication key comprises a user input password and a serial number of the mobile communication terminal.
3. The data management method according to claim 1, wherein the mobile communication terminal comprises a control unit to perform an authentication process for the external memory pack with request for input of the authentication key from the external memory pack in response to a sensing signal from the connection unit of the mobile communication terminal for indicating mounting of the external memory pack to the mobile communication terminal, and to store data and programs in the external memory pack or to read and execute the data and programs stored therein according to a control instruction for the external memory pack selected by a mobile communication terminal user after successful completion of the authentication for the external memory pack.